



CHILD LABOUR UTILIZATION IN RICE PRODUCTION ACTIVITIES AMONG FARMERS IN EBONYI STATE NIGERIA

Nwaobiala, C. U., Ugboaja, C. I. and Okafor, E. C.

Department of Agricultural Extension and Rural Development,
Michael Okpara University of Agriculture Umudike, Abia State, Nigeria
Corresponding Author's email: cunwaobiala@gmail.com

Abstract

This study analyzed utilization of child labour in rice production activities among farmers in Ebonyi State Nigeria. A multistage sampling procedure was used to select 120 respondents for the study. Data for the study were collected using a well structured questionnaire. The results were analysed with descriptive and inferential statistics (Probit and Pearson product moment correlation regression). Results showed that the total mean cost incurred by farmers using child labour in rice production activities was N124, 800.00 per hectare. The Probit regression result showed that coefficients of site selection (-0.7338), tillage operations (-0.6498), harvesting (-0.6498), herbicide application (-0.5943) and bird scaring (0.47477) influenced rice production activities in the study area. The result of Pearson product moment correlation results showed that cost of labour had an indirect relationship with utilization of rice production activities in the study area. The study therefore recommends that child labour should be used for less strenuous activities by ensuring a conducive environment, thereby managing labour input activities to enhance utilization of rice production activities in the study area.

Keywords: Utilization, child labour, rice, production activities, farmers

Introduction

Child labour implies all forms of work done by children under the age of 18 years (ILO, 2019). There are many diverging views about child labour, while some authors are of the opinion that the worst forms of child labour should be eradicated, others affirmed that it has positive impact on supply of family labour for farming activities. FAO (2013) reported that in the ages past and in all cultures, children joined their parents to work in the fields, in the market place, and around the homes as soon as they were old enough to perform simple tasks. Adeoye *et al.* (2017) stated that about 75% of Nigerians live in rural areas and 25% in urban areas which pose a major constraint in farm labour supply. This implies that most working children are located in rural areas and work in agricultural sub-sectors; such as crop and livestock farming, fishing, agriculture and cattle herding (Asiru *et al.*, 2018). Many of these children work long hours and are often exposed to toxic pesticides, dangerous tools, and extreme weather conditions.

In most of the West African countries, 79% of the children are employed in agriculture (Ugochukwu *et al.*, 2012). Nigerian agriculture is characterized by inefficiency in its small plot sizes and lack of technology, thus has led to less significant labour force (ILO-IPEC, 2016) According to expert interviews,

children play a significant role in agriculture by supporting their families in the preparation of land, planting, harvesting, and processing of crops. Experts note that the important role children play in agriculture is considered by many to be an essential part of their developmental experience. However, Over 60% of all child labourers within the age range of 5 to 17 work in agriculture, including crop farming, fishing and fish farming, livestock farming and forestry. This translates to more than 129 million boys and girls, 67.5% of whom are unpaid family members (ILO, 2017).

Erenstein *et al.* (2003) noted that about one-third of labourers used in rice production are adults, while two thirds are children, by this assertion, about 70% primarily work on-farm, while 30% primarily work off-farm. Over the years, Ebonyi State has been known over the decade as a major rice producing area (Ume *et al.*, 2016). ESADP (2016) indicated that the use of child labour could either boost or undermine rice production in the State, thereby supplying farm labour to the detriment to low attendance to school by the children. Reports show that children have been their major source of labour. Most of the farmers are polygamous to ensure they have enough family labour to use in their farms (Ezike *et al.*, 2013). Though, the use of child labour in agricultural production is highly condemned by

International agencies, their levels of utilization in different rice production activities are not yet ascertained. In view of these, this study analyzed utilization of child labour in rice production activities among farmers in Ebonyi State Nigeria.

Methodology

Study area

The study was conducted in Ebonyi State, Nigeria. The State is known as “Salt of the Nation” because of its large salt deposits. The capital is Abakaliki. It was created in 1996 out of Abia and Enugu States. It shares boundary with Benue State in the north, Abia State in the south, Cross River in the east and Enugu State in the West. Ebonyi State lies on Latitude 5° 40' and 6° 45' North of the equator and Longitude 7° 30' and 8° 46' East of the green wish meridian. It occupies a land area of 5,935 square kilometers with a population of 2,173, 501 people (NPC, 2006). The State is made up of thirteen (13) Local Government Areas (LGA) namely: Abakaliki, Afikpo South, Afikpo North, Ebonyi, Ezza South, Ezza North, Ishielu, Ivo, Ikwo, Izzi, Onicha, Ohaukwu and Ohaozara. The state has three (3) agricultural zones namely: Ebonyi North, Ebonyi Central and Ebonyi South. Ebonyi State is predominantly rural with majority of the rural population engaged in subsistence farming as their major means of livelihood. The major crops grown in the area include; rice, cassava, yam, cocoyam, maize, groundnut, vegetables and fruits, while fishing activities are predominant in the southern zone of the State.

Sample size and data analysis

A multistage sampling technique was used in the study. In the first stage, the three (3) agricultural zones: Ebonyi North, Ebonyi Central and Ebonyi South were all selected. In the second stage, four (4) agricultural blocks were selected from each zone making a total of twelve (12) blocks. Finally, ten (10) rice farmers were randomly selected from the selected blocks to give a total of one hundred and twenty (120) respondents. Descriptive statistics (such as frequency counts mean scores and percentages), Probit regression and Pearson product moment correlation were used to analyze the data.

Measurement of variables

Level of utilization of child labour in rice production activities among farmers were measured on a 3-point rating scale namely; always=3, occasionally = 2 and never = 1. The bench mark was obtained thus; 3+2+1 = 6 divided by 3 to give 2.0. Any mean score range of 1.00-1.50 implies low utilization, 1.51- 1.99 (moderate utilization) and 2.0 and above (high utilization).

Model Specification

Probit regression analysis is an econometric application that provides the advantage of an explicit link between zero and non – zero data by offering a variety of specifications of the latent variables and related mechanisms. The Probit regression model is used to describe the relationships between the non – negative

dependent variable Y and the independent variables (Xi). The dependent variable linearly depends on Xi via a parameter β which determines the relationship between the independent variables Xi and the latent variables Y*. Probit model constrains estimated probabilities to be between 0 and 1; and relaxes the constraint that the effect of independent variable is constant across different predicted values of the dependent variable. This is normally experienced with linear probability model (LPM). The Probit model assumes only the values of 0 and 1 for the variable Y, there is a latent unobserved continuous variable Y* that determines the value of Y. The other advantages of Probit model include believable error term distribution and realistic probabilities.

We assume that Y* can be specified thus:

$$Y^* = X' \beta + \varepsilon \dots \dots (1)$$

Where,

$$\varepsilon \sim N(0, 1)$$

Then, Y can be viewed as an indicator for whether this latent variable is positive:

$$Y = 1(Y^* > 0) = 1 \text{ if } Y^* > 0 \text{ i.e. } -\varepsilon < X' \beta, 0 \text{ otherwise.}$$

Where,

Y_1^* = an underlying latent variable that indexes the levels of utilization of farmers using child labour

X = Vector of explanatory variables

β = Coefficient

ε = Random error

The explicit form of the model is expressed thus:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \mu_i \dots \dots (2)$$

Where,

Y = probability of farmers using child labour in rice production activities ranging from 0 - 1.

X_1 = site selection (yes = 1, no = 0)

X_2 = tillage operations (yes = 1, no = 0)

X_3 = seed selection (yes = 1, no = 0)

X_4 = pre-nursery establishment (yes = 1, no = 0)

X_5 = planting (yes = 1, no = 0)

X_6 = bird scaring (yes = 1, no = 0)

X_7 = fertilizer application (yes = 1, no = 0)

X_8 = herbicide application (yes = 1, no = 0)

X_9 = water control/bonding (yes = 1, no = 0)

X_{10} = harvesting (yes = 1, no = 0)

$\beta_1 - \beta_{10}$ = Coefficients to be estimated

μ_i = error term

Results and Discussion

Estimates of Child Labour Costs Incurred in Rice Production Activities

Result in Table 1 showed the child labour costs incurred by farmers per one hectare per rice farm in the study area. The result revealed that a total cost of N124, 800.00 per hectare were incurred by rice farmers in the study area. Traditionally, children have worked with families, but today children are forced to work for their own and their family's survival. The money earned by child

family members has become a significant part of poor families' income. Adeoye *et al.* (2017) and Okeleye *et al.* (2012) reported that a number of factors dispose so many children to child labour. These factors include; poverty, large family size, family tradition, socialization

process, poor educational achievement, home conditions, rural-urban migration and high demand among employers for cheap and submissive child labour, especially in the agricultural sector.

Table 1: Labour cost incurred by farmers using child labour in rice production activities per hectare in the study area

Activities	Quantity (kg)	Cost/man day (₦)	Cost/ha(₦)
Nursery establishment	50kg of rice seedling for one portion	1,000 x 2 children	2,000
Tillage operations	20 portions	2,000	40,000
Planting by broadcasting	50kg bag of rice seeds	2,000	2,000
Planting by transplanting	20 bundles of rice seedlings	1,500	30,000
Uprooting of nursery seedlings	20 bundles of rice seedlings	500	10,000
Fertilizer application	4 bags of N:P:K and 2 bags of urea	300	1,800
Application of herbicides	14 bottles	1,500	9,000
Water control/bonding	20 bonds	500	10,000
Birds scaring	-	-	-
Harvesting	20 bundles of rice seedlings	1,000	20,000
Grand Total			124,800.00

Source: Field Survey Data, 2018

Level of Utilization of Child labour in Rice Production Activities

The mean utilization of child labour in rice production activities in the study area is shown in Fig. 1. The result indicates that the most important activity where child labour were utilized include; planting of rice seeds, bird scaring and harvesting with mean scores of 2.7 each, implying high utilization. These were followed by tillage operations (2.6), pre-nursery establishment (2.4), and herbicide and fertilizer application (2.0 each). There

was moderate utilization for seed selection (1.8), low utilization for site selection (1.5) and water control and irrigation (1.4). The mean utilization score was 2.2, which indicates that generally, there was high utilization of child labour in rice production activities in the study area. This could be justified when compared to the report of Ezike *et al.* (2011) that most of the small scale farmers used child labour in agricultural activities especially in rice fields in Ebonyi State, Nigeria.

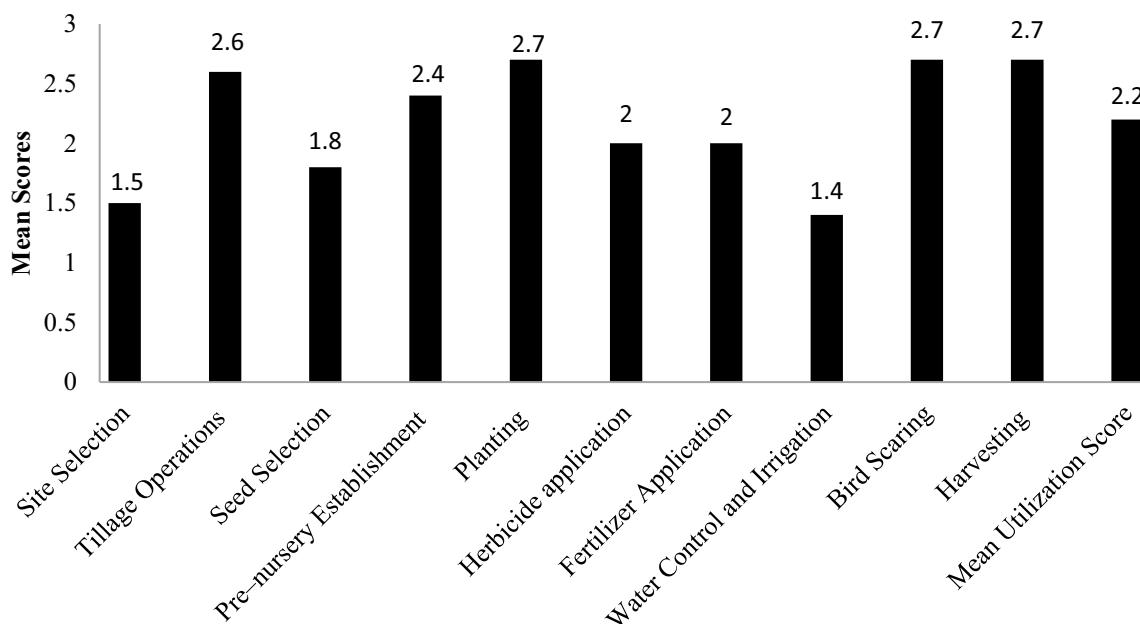


Figure 1: Utilization of Children in Rice Production Activities in the study Area

Determinants of utilization of child labour in rice production activities

The results in Table 2 show the Probit regression estimates of the effect of utilization of child labour in rice production activities in the study area. The result shows a Chi² value of 11.16 which was significant at 5% level of probability indicating goodness of fit of the

Probit regression line. The pseudo R² value of 0.6688 imply 66.88% variability in probability of utilization of child labour in rice production activities in the study area. The log-likelihood estimate was - 75.5684. The coefficient of site selection (-0.7338) was negative and significant at 1.0% level of probability. This implies any increase in site (land location) selected will lead to a

corresponding decrease in probability of utilization of child labour in rice production activities among farmers in study area. This is expected because site selection is majorly done by adult farmers in the study area who are experienced in rice production. This was also evidenced by its low level of utilization in Fig. 1. The result is in consonance with the findings of Ogunsiri *et al.* (2013) that site selection needs experienced farmers who are able to determine the requirements for rice farming in developing countries. The coefficient of tillage operations (-0.6498) was negative and significant at 5.0% level probability. This implies that any increase in tillage operations (land cultivation and pulverization) will lead to a corresponding decrease in the probability of utilization of child labour in rice production activities in the study area. The non-use of child labour in this activity might be attributed to the strenuous activities involved in its operations. The result is in tandem with the findings of Osabuohien *et al.* (2018) who obtained a similar result among rice farmers in Ogun State, Nigeria. The coefficient of bird scaring (0.47477) was positive and highly significant at 1.0% level of probability. This implies any increase in bird scaring operation will lead to a corresponding increase in the utilization of child labour in rice production activities in study area. This implies that rice farmers use children to scare birds from ravaging their farms in the study area.

This result corroborates with the findings of Wopereis *et al.* (2014) who reported that birds damage to rice in African are checked by the use of child labour in rice production. The coefficient of herbicide application (0.5943) was positive and significant at 5.0% level of probability. This implies that any increase in herbicide application will lead to a corresponding increase in the probability of utilization of child labour in rice production activities in the study area. This is in contrast with *a priori* expectation probably because of the exposure of children to the hazardous effect of chemicals during rice production activities. The result is in consonance with the findings of Lana (2014) as he affirmed that children in sub-Saharan Africa are exposed to hazards of farming, especially agrochemicals utilized during agricultural production. The coefficient of harvesting (-0.6498) was negative and highly significant at 1.0% level probability. This implies that any increase in harvesting will lead to a corresponding decrease in the probability of utilization of child labour in rice production activities in the study area. This is in conformity with *a priori* expectation probably because some rice production activities require more energy to execute. The result corroborates with the findings of Nyabam and Ljie, (2018) as they affirmed that children are mostly involved in rice production activities in Nigeria.

Table 2: Probit regression estimates of utilization of child labour in rice production activities among farmers in the study area

Variables	Parameters	Coefficient	Standard error	T-value
Constant	β_0	-0.2778	0.5756	-0.48
Site selection	β_1	-0.7338	0.1470	-4.99***
Tillage operation	β_2	-0.6498	0.3235	-2.01**
Seed selection \	β_3	-0.3628	0.3692	-0.98
Pre-nursery establishment	β_4	-0.3839	0.3852	-1.00
Planting	β_5	0.4023	0.3879	1.04
Bird scaring	β_6	0.4747	0.10436	4.55***
Fertilizer application	β_7	0.0421	0.2739	0.15
Herbicide application	β_8	0.5943	0.3214	2.05**
Water control	β_9	0.2978	0.3136	0.95
Harvesting	β_{10}	-0.8267	0.2575	-3.20***
Chi ² (χ^2)		11.16**		
Pseudo R ²		0.6688		
Log Likelihood		-75.5684		

Source: STATA 4A Results. ** $P \leq 0.05$ and *** $P \leq 0.01$

Pearson Product Moment Correlation analysis of the relationship between cost of labour and utilization of child labour in rice production activities

The result in Table 3 shows the relationship between cost of labour and utilization of rice production activities among farmers in the study area. The result shows a correlation coefficient of -0.5841 which was negative at 5.0% level of probability. This implies that

the cost of labour had an indirect relationship with utilization of child labour in rice production activities in the study area. The negative sign of the coefficient is supported by the law of demand, this is because most of the farmers only earn the subsistence level of income from farming and they are not able to use high cost of inputs in production as a requirement of the crop (Oladimeji and Edun, 2018).

Table 3: Correlation coefficient of relationship between cost of labour and utilization of child labour in rice production activities among farmers in the study area

Variables	Coefficient (r^2)	t-value	p-value
Cost of labour	1.000		
Utilization of child labour in rice production activities	-0.5841	0.0017**	1.000

Source: STATA 13 Results. ** $p \leq 0.05$

Conclusion

The study has revealed that the child labour was highly utilized in rice production activities among the rice farmers in the study area. Probit regression analysis also showed that site selection, tillage operation, bird scaring, herbicide application and harvesting were important factors influencing child labour utilization in rice production activities among the farmers in the study area. The result of Pearson product moment correlation analysis showed that cost of labour had an indirect and significant relationship with child labour utilization in rice production activities in the study area. Therefore, child labour should be used for less strenuous activities in the field especially bird scaring for enhanced and efficient utilization of labour in the study area. If children must be used for rice production, the environment should be made favourable and conducive.

References

- Adeoye, S., Agbonlahor, M., Ashaolu, D. F. and Ugalahu, U. B. (2017). Analysis of child labour dimensions and causes in rural farm households of Ogun State, Nigeria. *African Journal of Food, Agriculture, Nutrition and Development*, 17(3): 12198–12213.
- ESADP (2016). Ebonyi State Agricultural Development Project. Annual report on rice revolution programme. ADP Vol. 6. EBADP.
- Asiru, M. A., Iye, C. A. and Olaoluwa, K. (2018). Impact of rice importation on Nigeria's economy. *Journal of Scientific Agriculture*, 2(1): 71–75.
- Ezike, U., Nwibo S. U., Mbam, B.N. and Okafor C. E. (2011). Child labour and agricultural productivity. 25th Annual Conference of Farm Management Association of Nigeria (FAMAN) held at Ondo State University Akure, Pp. 252
- FAO (2013). Food and Agriculture Organization. Regional Conference for Asia and the Pacific Beijing China, 17-21 May.
- ILO-IPEC (2016). International Labour Organization - International Programme on Elimination of Child Labour. Global Estimates of Child Labour Results and Trends 2012-2016. Geneva. www.ilo.org Retrieved 16th March 2019.
- ILO (2017). International Labour Organization. World employment social outlook. ISBN.978-92-21288824 PDF.
- ILO (2019). The land mark report by ILO. Global Commission on the Future of work. Work for a Brighter Future Published 22 January, 2019. www.ilo.org. Accessed 10 February, 2019.
- Kibono, J. Bosco, N. J. and Murage, H. (2015). Suitability analysis for rice growing sites using multi criteria and geographic information systems approach in Great Mwea Region, Kenya. *Springer Plus*, 2(1):265 December.
- Lana, O. (2014). *Child labour; the effect on child, causes and remedies to the revolving menace*. MSc Thesis in Department of Human Geography, University of Lund, Sweden.
- NPC (2006). National Population Commission. Nigeria national gender policy of Federal Republic of Nigeria; situation analysis/framework. The Federal Ministry of Women Affairs and social Development, Abuja, Federal Republic of Nigeria.
- Nyabam, V. and Ijie, B. A. (2018). Empirical Analysis of International Institute for Agriculture (IITA) in Agribusiness Model as a Panacea for Solving Youth Unemployment. *The International Journal of Humanities and Social Sciences*, 6(11): 146–151.
- Ogunsiri, L. O., Ajayi, A., Amire, C. M. and Williams, S. (2013). Sustainability of Agricultural Transformation Agenda. The place of rice farmers in Ogun State, Nigeria. *Research on Humanities and Socio-Sciences*, 3(3): 66-78.
- Okeleye, K. A., Onyekanmi, A. A., Ariyo, O. I. and Tayo, T. O. (2012). Performance of rice varieties under upland and lowland rainfed ecologies of Southwestern Nigeria. *ASSET Series A*, 2: 127 – 140.
- Erenstein, O., Lançon, F., Akande, S. O., Titilola, S.O., Akpokodje, G. and Ogunde, O. O. (2003). The Nigerian Rice Economy In A Competitive World: Constraints, Opportunities And Strategic Choices. Rice production systems in Nigeria: A survey. West Africa Rice Development Association (WARDA) Abidjan, Côte d'Ivoire. 95pp
- Oladimeji, Y. U. and Edun, A. J. (2018). Determinants of child labour among rural farming households in Kwara State, Nigeria. *Nigerian Journal of Rural Sociology*, 18(2):83-89.
- Osabuohien, S. C., Okorie, R. and Osabuohien, R. A. (2018). Rice production and processing in Ogun State, Nigeria: Qualitative Insights from Farmers' Association. Food Systems Sustainability and Environmental Policies in Modern Economies. Pp.188–215.
- Ugochukwu, E. F., Okeke, K.N., Onubogu, C.U. and Edokwe, E.S. (2012). Socio-demographic characteristics of child street vendors in Nnewi, Nigeria. *Nigerian Journal of Pediatrics*, 39(4): 174 –178.
- Ume, S. I., Ejenma, E., Chikwendu, L. and Weje, I. I. (2016). Effect of youth rural-urban migration on child labour use in rice production in Afikpo Local Government Area of Ebonyi State, Nigeria. *Asian Research. Journal of Arts and Social Sciences*, 1(3):1–11.
- Wopereis, M.C.S., Johnson, D. E., Ahmadi, N., Tollens, E. and Jalloh, A. (2014). Bird damage to rice in Africa. Evidence and control. Realizing Africa's rice promise: Priorities for Action. www.africanrice.org. accessed 05 February, 2019.